

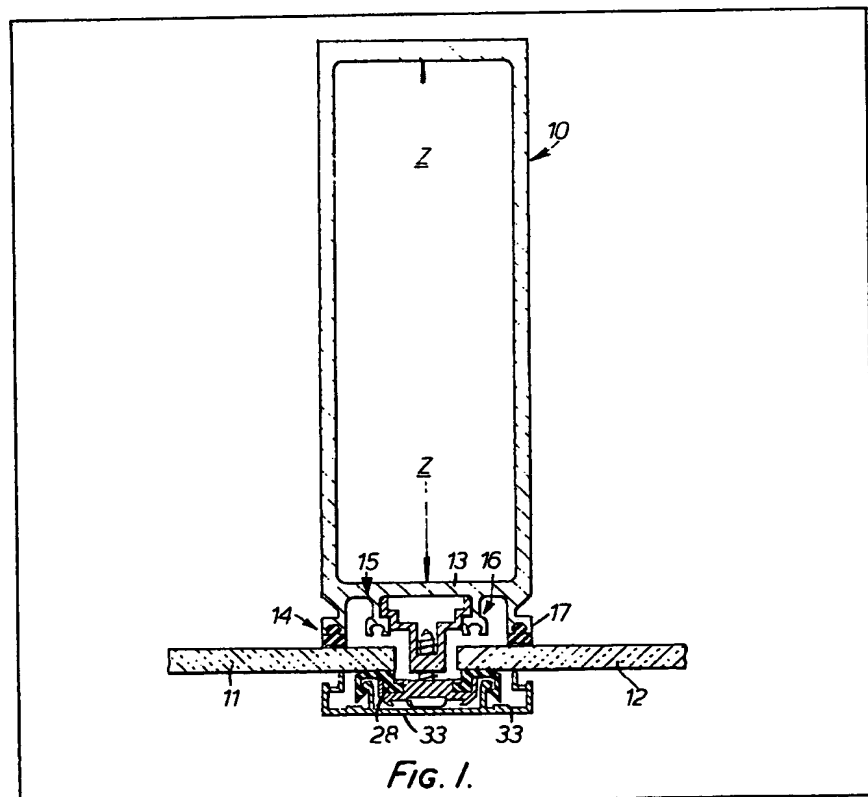
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## (54) Glazing Bars

(57) A glazing bar for a patent glazing system is designed to support the edges of two adjacent glazing sheets 11, 12 and comprises a hollow box section 10 with an end wall or web 13 formed with two pairs of ribs 14, 15, 16, 17 each with a groove which may receive a sealing strip 19, 20. The two inner ribs 15, 16 locate in anchorage clip 24 which is engaged by a bolt 23 holding a cover strip 33 in position against the outer faces of the two sheets.

A compression joint for joining two bars end-to-end is described.



The drawings originally filed were informal and the print here reproduced is taken from a later filed formal copy.

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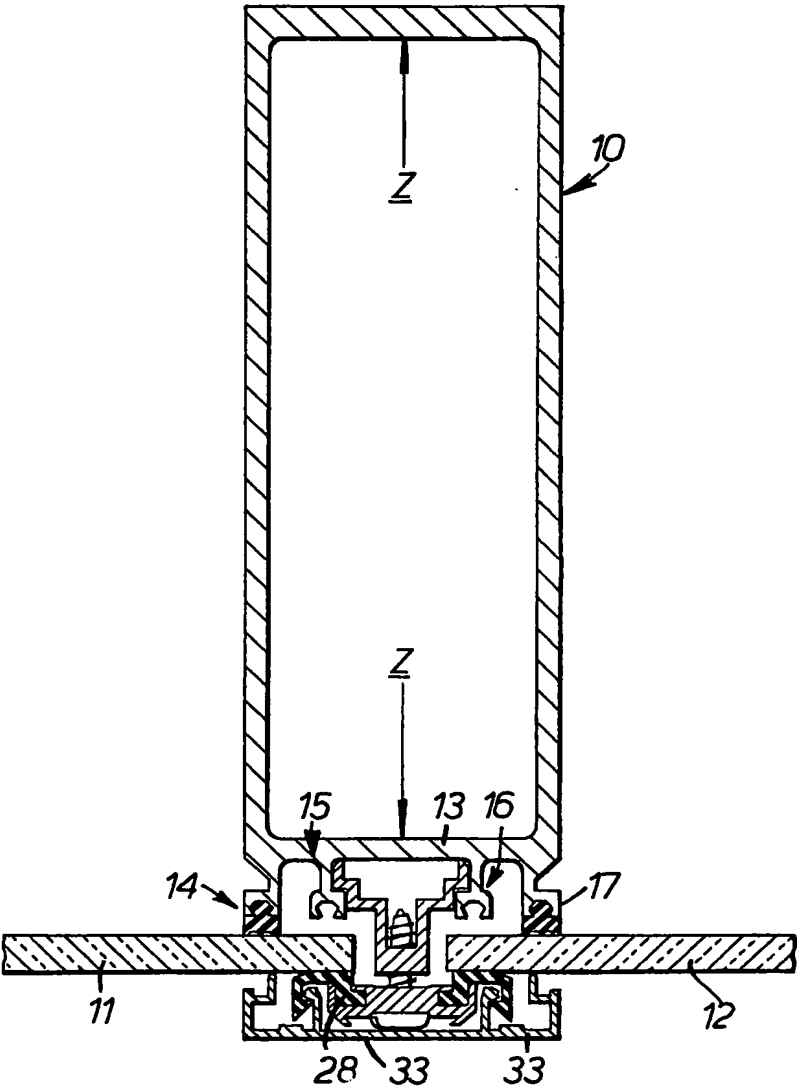
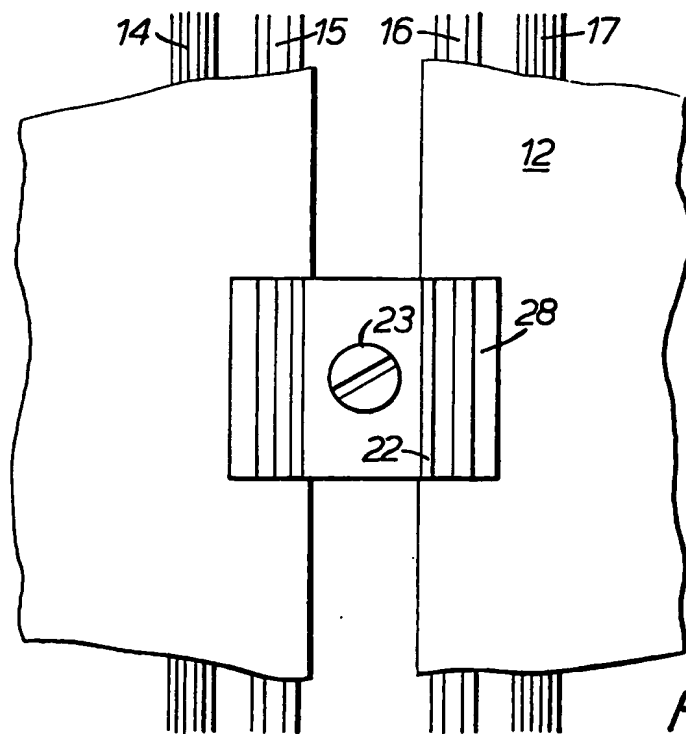
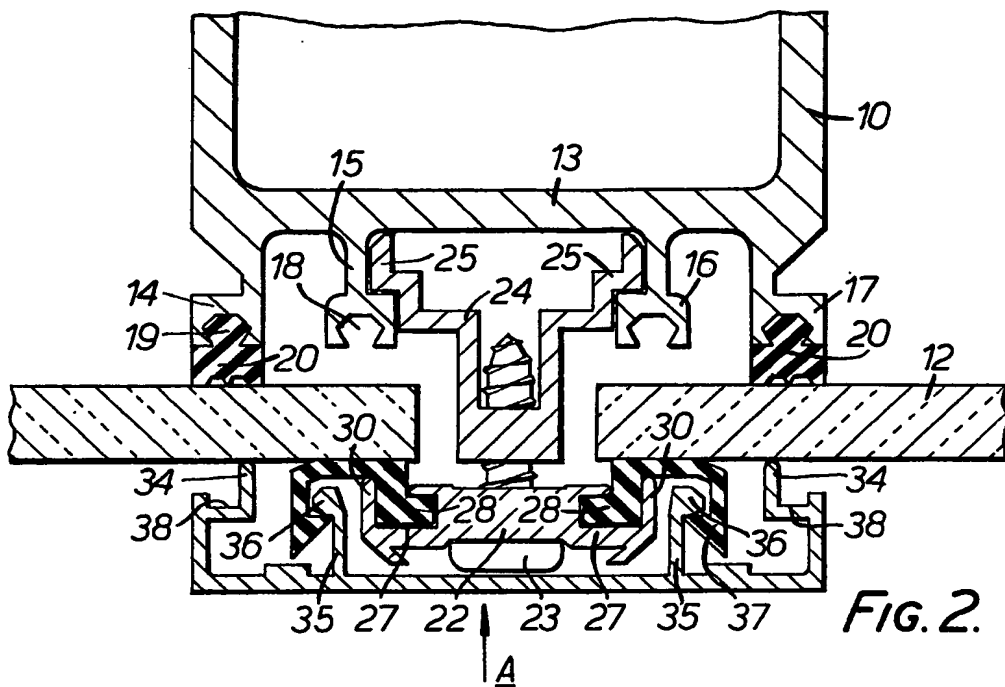


FIG. 1.

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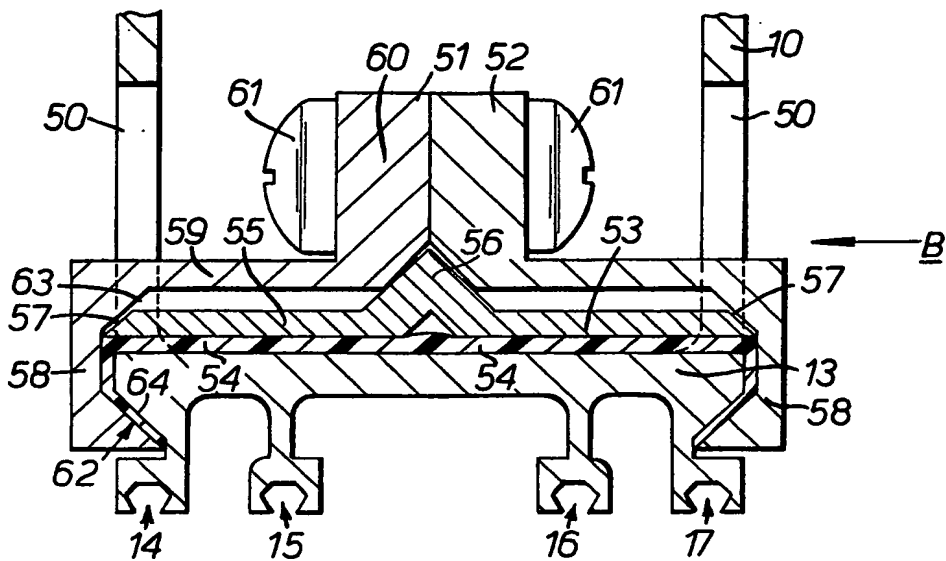


FIG. 4.

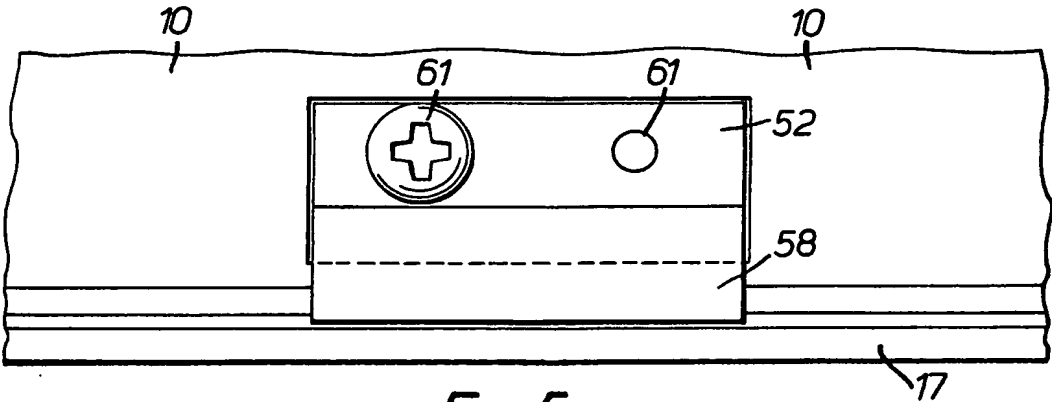
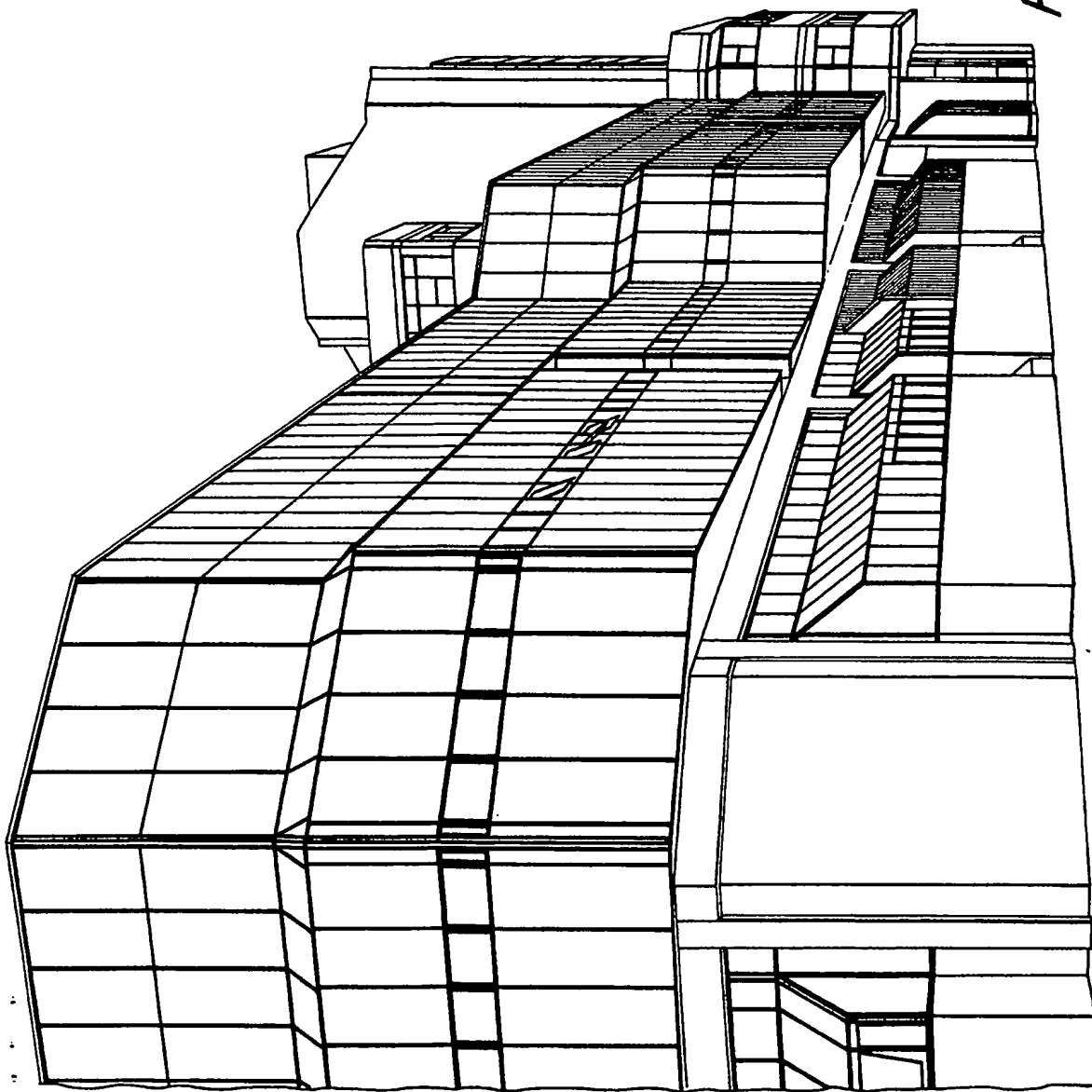


FIG. 5.

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FIG. 6.



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## SPECIFICATION

## Glazing bars

5 This invention relates to glazing panel support systems and bars of the general type known as patent glazing systems.

The invention is particularly applicable to systems including a glazing bar designed to support the adjacent edges of two adjacent flat panels, usually glazing panels, and including also means for anchoring the panels in position and means providing a weather seal across the two adjacent panel edges.

10 Glazing systems of this type are used both on vertical building walls and inclined roofing. The conditions and problems, however, are somewhat different in the two applications. Existing glazing systems suffer from various disadvantages and it is an object of the invention to provide an improved system and a glazing bar for use therein.

Broadly stated from one aspect the invention consists in a glazing bar for supporting the edges of two adjacent panels or sheets, having a web to lie parallel with the sheets and two pairs of upstanding parallel ribs, each with a groove to receive a sealing strip, the bar also having means to locate one or more anchors to hold the glazing sheets in position, and means to provide an external weather seal across the junction between the two panel edges.

25 One of the advantages of the twin pairs of parallel ribs is that the same glazing bars can then be used for vertical walls or inclined roofing. The use of a pair of ribs with twin sealing strips for each panel provides a surprising improvement in the sealing and waterproofing action. The twin sealing strips also provide better support and location for the edges of the panels.

Another object of the invention is to provide an improved system for holding the panels in position and according to a further aspect of the invention the anchoring means of a glazing bar of the type referred to includes anchor clips of limited length which are adjustable longitudinally along the bar. This arrangement facilitates installation and assembly of the whole system. Each clip is preferably attached by a screw thread fastening to an anchor block which is itself movable longitudinally along the bar.

In some applications the glazing bars are required to be of considerable length and for these and other reasons the bars may require additional rigidity and stiffness as compared with a conventional bar.

Accordingly from another aspect the invention consists in a glazing bar of the type referred to in which the main body of the bar is of hollow section.

55 This is not only beneficial in adding stiffness, but is also of special advantage in its function as a glazing bar, supporting panel edges, and also in some applications acting as a weather seal, and drainage channel.

60 Conveniently one of the end walls of the box itself acts as the flange or web on which the edges of the panels are located.

When it is desired to connect the glazing bars end-to-end it is important that they should be accurately located and aligned. From another aspect

of the invention a glazing bar of the type referred to is connected end-to-end with a similar bar by means of a compression joint, including at least two separate connecting parts having inclined or tapered internal surfaces to engage with corresponding tapered surfaces on the glazing bars or another associated part, and means for tightening the connecting members to create a weather-proof longitudinal joint and prevent leakage between the two bars.

70 A compression joint of this type not only provides accurate alignment of the two bars and therefore preserves accurate location of any panel which spans from one bar to the next, but can also provide complete water-proofing between one bar and the next. In many instances the bars act as drainage channels and any leakage would otherwise penetrate into the building.

In many instances it is also important to reduce thermal conduction between the internal and external parts of the glazing bar assembly.

Thus according to another aspect of the invention a glazing bar of the type referred to, includes means providing a thermal break between the external and internal components of the bar assembly. In one example the thermal insulating element acts between an anchorage element for the panels and the body of the bar or the panels as the case may be. There may be insulation also between the weather sealing strip and the body of the bar.

The invention may be performed in various ways and one specific embodiment with some possible modifications will now be described by way of example with reference to the accompanying drawings, in which:-

100 *Figure 1* is a sectional end elevation through one form of glazing bar according to the invention supporting the adjacent edges of two external glazing panels,

105 *Figure 2* is a detailed sectional view showing the panel supporting components on an enlarged scale,

*Figure 3* is a fragmentary elevation of the construction of *Figure 2*, as seen in the direction of arrow A,

110 *Figure 4* is another sectional view illustrating the use of a compression joint to connect together two such glazing bars end to end,

*Figure 5* is an elevation of part of the assembled joint with two bars as seen in the direction of arrow B in *Figure 4*, and

115 *Figure 6* is a general perspective view illustrating one typical example of a building having both a vertical and inclined patent glazing system interconnected.

120 Referring first to the construction illustrated in *Figures 1* to *3*, the glazing bar 10 is designed to support the edges of two external glazing panels 11,12. The main body of the bar 10 is of hollow rectangular box section, its dimensions in the direction Z-Z normally being larger to increase its stiffness and rigidity over an extended length. On the end wall 13 are formed four parallel extruded ribs 14,15,16,17, in two pairs to associate respectively with the two panels 11,12. Each rib has an undercut groove 18 to accommodate the bead 19 of a flexible

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extruded Neoprene or other sealing strip 20. In this particular illustration sealing strips are only shown in the outermost ribs 14,17 but may be located also in the inner ribs 15,16 when required for example if the glazing bar is to be located on an external inclined area.

The two glazing panels 11, 12 are held in position against the sealing strips 20 by a series of anchorage clips 22 each connected by a tightening screw 23 to an anchorage block 24 which has stepped legs 25 locating in undercut grooves formed by the enlarged heads of the two ribs 15,16. Each of the clips 22 and anchorage blocks 24 is of limited length, as seen in Figure 3 and can slide longitudinally into any desired position along the bar. This greatly facilitates installation.

Each of the anchorage clips 22 is formed with a groove 27 along each end, in which is located part of a plastics thermal insulating barrier element 28. This element is arranged to engage the external surface of the respective panel 11, 12 to which end a narrow flange 30 on the clip is arranged to project proud of the rear face of the clip and so press the element 28 against the two glazing panels.

In addition, the assembly includes a weather strip or cover strip 33 which extends the full length of the bar and overlies the longitudinal gap between the two panels and the anchorage devices. This cover strip has two outer intumed flanges 34 arranged to engage or lie close to the outer faces of the two glazing panels. Parallel with each flange is a shallow groove 38 which may receive a further sealing strip if required. In addition, the weather strip has two spaced intumed ribs 35 each with an enlarged head 36 designed to fit behind an intumed bar 37 on the respective insulating element 28. The cover strip can thus be fitted in position by a type of snap action where it engages the plastic insulating elements, which may themselves extend the full length of the glazing assembly.

When it is required to connect a pair of such glazing bars end-to-end a compression joint, as illustrated in Figure 4, may be used. Adjacent the end of each bar an opening 50 is formed in each of the side walls and extending close up to the end wall 13. The compression joint is formed in three parts 51,52,53 with a sealing element 54. The element 53 is a generally flat plate designed to fit along the back surface 55 of the end wall 13 on the two adjacent bars. It has an inverted V section central rib 56 for a purpose to be described and its two end edges 57 and inclined downwards and outwards, as illustrated. The two connecting parts 51,52 are identical and each includes a hooked part 58 designed to fit over the adjacent edge of the wall 13, a flat part 59 on the back of this wall 13, and an apertured bracket 60 to receive a screw threaded tightening device 61. The hook-shaped part 58 has two internal sloped surfaces 62,63 to co-operate respectively with an inclined flank 64 on the end wall of the glazing bar and with the tapered edge 57 on the plate 53. The bracket part 60 also has an internal chamfered surface 66 to co-operate with one flank of the inverted V ridge 56.

To assemble the joint the backing plate 53 is

located behind the end walls 13 of the two bars which are then brought together end-to-end and the two connecting parts 51,52 are introduced into position through the openings 50 to engage around the edges of the two end walls 13. The resilient sealing strip 54 is introduced into position between the backing plate and the two end walls 13.

The tightening device 61 is then manipulated to cause the two parts 51,52 to tighten inwardly towards each other across the width of the end wall 13 and in doing so the two inclined surfaces 63,66 on each side force the backing plate 53 towards the end walls 13 thus tightly gripping the sealing element 54 on each side of the joint. Simultaneously the inclined flank 62 acts in a direction to pull the two parts 51,52 downwardly, as seen in Figure 4, and also further assist in compressing the edges of the sealing strip 54. In the result a rigid accurate and substantially water-proof joint is formed between the two bars. When installed on an inclined or vertical external wall of a building this is very useful and effective in preventing any leakage of rainwater inwardly at the joint between two bars.

## 90 CLAIMS

1. A glazing bar for supporting the edges of two adjacent panels or sheets, having a web to lie parallel with the sheets and a pair of upstanding parallel ribs, each with a groove to receive a sealing strip, the bar also having means to locate one or more anchors to hold the glazing sheets in position, and means to provide an external weather seal across the junction between the two panel edges.
2. A glazing bar according to Claim 1, having two pairs of said upstanding parallel ribs, one pair for each sheet.
3. A glazing bar according to Claim 2, in which one of each pair of ribs acts to locate an anchorage clip for holding the glazing sheets in position.
4. A glazing bar according to any of Claims 1, 2 or 3, which is of hollow box section with the parallel ribs formed on one end wall thereof.
5. A glazing bar according to any of the preceding claims, connected end to end with a similar bar by means of a compression joint including at least two separate connecting parts having inclined or tapered internal surfaces to engage with corresponding tapered surfaces on the glazing bars or another associated part, and means for tightening the connecting members to create a weather-proof longitudinal joint and prevent leakage between the two bars.
6. A glazing bar according to Claim 5, in which each bar is of hollow box section and the components of the compression joint are accommodated partly within the hollow section.
7. A glazing bar according to Claim 5 or Claim 6, in which one end wall of the hollow box section is formed with parallel upstanding ribs to locate and support the edges of the two panels and in which the parts of the compression joint fit partly around the edges of this end wall and also engage the back surface thereof.
8. A glazing bar according to any of Claims 5 to 7,

in which the two parts of the compression joint are arranged to span across and grip the edges of a wall or flange of each bar and the tapered surfaces are so formed that tightening the two parts towards each other in a direction across the width of the wall or flange cause these parts to grip both bars.

9. A glazing bar according to any of the preceding claims, in which the anchoring means and/or the weather seal include means providing a thermal break between the external and internal components of the bar assembly.

10. A glazing bar according to Claim 9, including an anchorage element for holding the or each of the panels in position and thermal insulating means acting between the element and the body of the glazing bar or the glazing panels.

11. A glazing bar according to Claim 9 or Claim 10, including thermal insulation between the weather seal and the internal body of the bar.

12. A glazing bar assembly substantially in any of the forms described herein with reference to the accompanying drawings.

13. A patent glazing system including glazing bars according to any of the preceding claims.